

## THAT WHICH IS CLAIMED:

1. A ferrule comprising:  
a ferrule body extending lengthwise between opposed front and rear faces  
5 to thereby define a longitudinal axis, said ferrule body defining a lengthwise extending  
bore capable of receiving an end portion of an optical fiber,  
wherein said front face of said ferrule body includes a plateau defining a  
plane that extends perpendicular to the longitudinal axis and a hemispherical portion  
through which the bore opens.  
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2. A ferrule according to Claim 1 wherein the hemispherical portion is  
rearward of the plateau.
3. A ferrule according to Claim 1 wherein a plane coincident with the bore is  
15 disposed at an offset angle to the plane perpendicular to the longitudinal axis.
4. A ferrule according to Claim 3 wherein the plane coincident with the bore  
is disposed at an offset angle of between 8° and 12° relative to the plane perpendicular to  
the longitudinal axis.  
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5. A ferrule according to Claim 1 wherein said plateau extends across less  
than 50% and said hemispherical portion extends across more than 50% of the front face  
of said ferrule body.
- 25 6. A ferrule according to Claim 1 wherein said ferrule body includes a side  
surface extending between the opposed front and rear faces, and wherein said plateau is  
disposed proximate the side surface of said ferrule body.
7. A ferrule according to Claim 1 wherein a portion of said ferrule body  
30 proximate the front face is chamfered.

8. A method of fabricating a ferrule comprising:  
securing the ferrule within a mounting fixture such that a front face of the ferrule is exposed, wherein the ferrule includes a lengthwise extending ferrule body that defines a longitudinal axis, and wherein the front face of the ferrule is perpendicular to  
5 the longitudinal axis;  
providing a grinding wheel mounted upon a spindle for rotation therewith, wherein the spindle defines a spindle axis extending through the center of the grinding wheel that is offset by a predetermined angle from a plane perpendicular to the longitudinal axis, and wherein the grinding wheel defines an offset axis that is  
10 perpendicular to the spindle axis and is coplanar with both the spindle axis and the longitudinal axis;  
advancing at least one of the grinding wheel and the ferrule toward the other along a motion axis that extends parallel to the longitudinal axis and that is coplanar with the spindle axis, the offset axis and the longitudinal axis;  
15 rotating the grinding wheel about both the spindle axis and an offset axis during said advancing step in order to grind a portion of the front face of the ferrule into a hemispherical shape; and  
halting further advancement along the motion axis prior to grinding all of the front face of the ferrule into a hemispherical shape such that a portion of the front  
20 face of the ferrule remains a plateau that extends perpendicular to the longitudinal axis.
9. A method according to Claim 8 wherein rotating the grinding wheel about both the spindle axis and an offset axis comprises rotating the grinding wheel at a faster rate about the spindle axis than about the offset axis.
- 25 10. A method according to Claim 8 wherein providing the grinding wheel comprises positioning the spindle such that the predetermined angle between the spindle axis and the plane perpendicular to the longitudinal axis is between 8° and 12°.

11. A method according to Claim 8 wherein providing the grinding wheel comprises providing a grinding wheel having an arcuate grinding surface that defines a radius of curvature between 5 mm and 12 mm.

5 12. A method according to Claim 8 wherein advancing at least one of the grinding wheel and the ferrule toward one another comprises advancing the grinding wheel toward the ferrule along the motion axis.

13. A method according to Claim 12 further comprising fixing the mounting  
10 fixture in position while the grinding wheel is advanced toward the ferrule.

14. A method according to Claim 8 wherein securing the ferrule within the mounting fixture comprises adjusting the position of the ferrule relative to the grinding wheel.

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15. An apparatus for fabricating a ferrule comprising:  
a mounting fixture for securely holding a ferrule such that a front face of the ferrule is exposed, wherein the ferrule includes a lengthwise extending ferrule body that defines a longitudinal axis, and wherein the front face of the ferrule is perpendicular  
20 to the longitudinal axis;

a grinder comprising:

a spindle adapted for rotation about a spindle axis that is offset by a predetermined angle from a plane perpendicular to the longitudinal axis; and

a grinding wheel mounted upon the spindle for rotation therewith  
25 about the spindle axis,

wherein said grinder is also adapted to rotate both the spindle and the grinding wheel about an offset axis that is perpendicular to the spindle axis and is coplanar with both the spindle axis and the longitudinal axis; and

a translation device for advancing at least one of the grinder and the  
30 mounting fixture toward the other along a motion axis that extends parallel to the

longitudinal axis and that is coplanar with the spindle axis, the offset axis and the longitudinal axis to permit at least a portion of the front face of the ferrule to be ground.

16. An apparatus according to Claim 15 wherein the spindle is adapted to  
5 rotate at a faster rate about the spindle axis than said grinder is adapted to rotated both the spindle and the grinding wheel about the offset axis.

17. An apparatus according to Claim 15 wherein the spindle axis is offset  
10 from the plane perpendicular to the longitudinal axis by a predetermined angle of between 8° and 12°.

18. An apparatus according to Claim 15 wherein the grinding wheel has an arcuate grinding surface that defines a radius of curvature between 5 mm and 12 mm.

15 19. An apparatus according to Claim 15 wherein said translation device comprises a translation stage, and wherein said grinder is mounted upon said translation stage for advancement toward the ferrule along the motion axis.

20. An apparatus according to Claim 19 wherein said mounting fixture  
20 comprises a collet for fixing the ferrule in position relative to the grinder.

21. An apparatus according to Claim 15 further comprising a plurality of adjustment stages for adjusting the position of the mounting fixture in respective planes relative to the grinder.

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